Improving Multicultural Teamwork to Combat Terrorism

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ABSTRACT

The U.S. Army is striving to implement the concept of full spectrum operations in which planning and execution of missions such as peace enforcement, peacekeeping, and humanitarian assistance are fully integrated with major combat operations. These operations, collectively called Stability, Security, Transition, and Reconstruction will involve collaboration among diverse stakeholders. The objective of the collaboration will be to consider and coordinate actions across domains to win the war by winning the peace. In part, this operational change is being driven by terrorism, but this type of mission is not new to the U.S. Army. Observations from U.S. deployments to Bosnia are presented within the context of Iraq. In conclusion a review of research projects being led by the U.S. Army Research Laboratory to improve multicultural teamwork is presented.

1.0   INTRODUCTION

The U.S. Army prepares for combat and is confident in its combat skills. However, to fight terrorism and to meet the challenges facing the coalition in Iraq, a different approach oriented toward achieving long-term regional stability is required. Consider first how best to defeat improvised explosive devices (IEDs). U.S. military forces clearly have the training and the technology to find and kill at least some of the insurgents in Iraq before they can emplace IEDs. However, it is likely that the use of major combat methods would have an unacceptably high impact on civilians and infrastructure and in the end would create more terrorists than are eliminated. To achieve long-term success requires the support of the local populace and that is best achieved by establishing or re-establishing security, basic services, and opportunities for growth. Chiarelli and Michaelis (2005) state that "if there is nothing else done other than kill bad guys and train others to kill bad guys, the only thing accomplished is moving more people from the fence to the insurgent category—there remains no opportunity to grow the support base" (p. 6). Growing the support base is more about winning the peace than winning the war. Our approach must be a combined approach, one that takes direct action to kill or capture terrorists, but also includes an indirect approach aimed at co-opting the local populace using the restoration of security and basic services to insure that they do not provide the terrorists sanctuary.

Combating terrorism by winning the peace is a "wicked" problem. A wicked problem is one that involves multiple stakeholders working together to solve an ill-structured problem (Rittel & Webber, 1973). Each stakeholder may have a separate agenda and the goal of the collaboration is to consider the issues, constraints, and requirements of each of the stakeholders in developing an acceptable solution and plan of action. In the case of Iraq there is a coalition of multinational forces each with its own strengths, capabilities, and reasons for being a member of the coalition. There are other government agencies concerned with establishing a functioning government. There are aid agencies dedicated to providing

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humanitarian assistance and there are the local community leaders and service providers working with the coalition to re-establish security and basic services to the community. Military objectives and civil operations are inexorably linked.

Wicked problems have no known solutions. In fact, merely defining the problem becomes a negotiation among experts (Buckingham Shum, 2003; Rittel & Webber, 1973). Wicked problems are characterized by an evolving set of interlocking issues and constraints and a problem solving process that is fundamentally social. There is no single "right answer," and often it is more important to develop a solution that diverse stakeholders can accept and modify as the constraints on the solution change over time than to identify the best solution. Thus, with regard to the War on Terrorism, a combined approach agreed upon through discussion and negotiation among experts in a variety of fields will be required to combat terrorism and to address the complex, socially-oriented problems characteristic of Stability, Security, Transition, and Reconstruction (SSTR) operations.

SSTR operations were recently established as a core U.S. military mission, on par with combat operations (United States Department of Defense, 2005). The objective of these missions is to help establish order with the aim of attaining a sustainable peace while advancing U.S. interests. U.S. policy on SSTR operations states that team membership shall be open to representatives from other U.S. departments and agencies, foreign governments and security forces, international organizations, U.S. and foreign NGOs, and members of the private sector with relevant skills and expertise. Arguably the U.S. Army has conducted SSTR operations regularly throughout history (Yates, 2006), however, despite their frequency, the mindset of the U.S. Army has remained oriented on warfighting. Doctrine, organizations, training, leader development, materiel, personnel, and facilities have been primarily designed to support warfighting.

In a recent New York Times article, Jeffrey Gettleman summarizes an interview with U.S. Army Colonel Donahoe, a Commander in Iraq (Jeffrey Gettleman, 16 April 2006). Colonel Donahoe, who was a captain in Bosnia, believes his experiences there were more important in his preparation for Iraq than the 15 years he spent as a tank commander. In Bosnia, the Serbs, the Bosnian Muslims, and the Croats comprised the local populace. In Iraq, it is the Sunnis, the Shiites, and the Kurds. The insurgency complicates the mission, but the work is essentially the same. It is a balancing act, waging war, but pushing peace. In the words of General Charles C. Krulak, former Commandant of the U.S. Marine Corps, this is a three block war. "In one moment in time, our service members will be feeding and clothing displaced refugees – providing humanitarian assistance. In the next moment, they will be holding two warring tribes apart conducting peacekeeping operations. Finally, they will be fighting a highly lethal mid-intensity battle. All on the same day, all within three city blocks (Krulak, 1997)."

2.0   OBSERVATIONS

What lessons can the U.S. Army learn from Bosnia? A research team led by the U.S. Army Research Laboratory Human Research and Engineering Directorate went to Bosnia on multiple occasions between 1999 to 2004. The team observed planning at the U.S.-led sector, Multi-National Division (North) and in Sarajevo at the Headquarters for the Sustainment Force (SFOR). The team participated in presence patrols and interviewed officers at all levels of command. Aspects of this work have been presented in several forums (Klein & Pierce, 2001; Pierce & Pomranky, 2001, Pierce, 2002a; Pierce 2002b) and have led to the development of pre-deployment training exercises, experimental test-beds, and programs of research to develop and evaluate technologies to improve multi-cultural collaboration (Pierce, Sutton, Foltz, LaVoie, Scott-Nash, & Lauper, in press; Sutton & Pierce, 2003; Sutton, Pierce, Burke, & Salas, 2006). Following is a summary of our observations at Multi-National Division (North) and a consideration of those operations within the context of Iraq. The observations are categorized as primarily related to operational readiness and organizational challenges. Embedded within the observations are implications for doctrine, materiel, leader development, personnel, and facilities.

2.1 Operational Readiness

2.1.1 Not all training improves operational performance

Unit preparation for Bosnia included a number of individual and collective training events over the course of 10-12 months, culminating in a Mission Rehearsal Exercise (MRE) and an Advanced Decision Making Exercise (ADME) during the final 45 days before deployment. A lack of technology and training materials to support learning the type of tasks required in a SSTR operation, a prohibition on incorporating SSTR tasks into the unit mission essential task list, and a personnel system that had staff members rotating out of and into the unit less than 45 days prior to deployment resulted in a unit ill-prepared to take advantage of a very complex and expensive rehearsal exercise. The 10-day MRE employed over 4000 exercise controllers and role players, at an approximate cost of 4 million dollars. Although the MRE was the last big rehearsal on the road to war, for many, it was actually their first opportunity to learn the fundamentals of their new jobs and to begin building the teams they would be working with during their deployment. Team development, however, was limited because many team players representing key SSTR enablers from the international community (IC); Civil Affairs (CA); and National Guard, Reserve, and multi-national forces were not at the MRE.

Of the hundreds of international agencies operating in Bosnia, only a few were represented during pre-deployment training events and interaction between the IC role-players, commanders, and teams was rare. CA personnel whose function it was to provide the interface between the IC and the unit did not participate in the training exercise because, as a National Guard and Reserve force, they were on a different rotational cycle than the unit. The CA Battalion that would support the unit during the first half of their rotation had already deployed. In interviews with unit commanders from the Commanding General to the Platoon leaders at one month and three months after deployment, the majority of those interviewed indicated that the most challenging aspect of their jobs was working with the IC.

Battalion personnel, especially at the lower levels, primarily were concerned with a lack of skill in negotiations. At Division, it was a general lack of understanding of the capabilities and functions of the IC. Many of the senior leaders had received realistic practice and one-on-one counselling to develop their negotiation skills. This level of training was not afforded to the lower level commanders, whose jobs were typified by their interactions with the IC, local officials, and the civilian population to execute their tasks. An adaptive response at the Battalion was to fully integrate CA personnel into their planning groups and to have them go on patrols as support to the Platoon leaders. At Division, the CA Battalion had representatives co-located with the IC. They regularly interacted with the local community by providing information on services, the international aid agencies, and employment. However, there was little interaction between the Division staff and the CA Battalion or the IC, resulting in a number of sub-optimal processes. Clearly, neither the MRE nor the ADME prepared the ad-hoc coalition team for the true operational environment.

2.1.2 Preparation in warfighting alone is inadequate for SSTR

The primary mission of the unit we worked with in Bosnia was to maintain the established safe and secure environment and to allow freedom of movement for the IC as it supported refugees returning and economic rebuilding. Operational challenges were primarily related to tasks unique to SSTR, especially in CA and Information Operations. Non-lethal effects dominated unit activities, however, training emphasized high-threat events such as how to respond to criminal activities and violent demonstrations. Little or no opportunity to learn or practice high probability functions and tasks was provided. This focus reflected a force protection philosophy and an assumption that a warfighting mindset would ensure the safety of the unit for the first 30 days of deployment and the SSTR-specific functions and tasks could be learned on the job. Observations of deployed forces and interviews with selected commanders and teams did not support this philosophy. Most believed that preparation and planning to handle crisis events was

required, but not to the exclusion of training for the more likely events. The following statement reflects the opinion of many unit personnel, "The hostile aggressive attitude at the MRE established a mindset that this was going to be a rough tour and incorrectly colored the unit's perception as too combative and gave us an 'us versus them' feeling that was not good for peacekeeping. Without explicit training on peacekeeping we may tend to interpret events in the context of warfighting and put an inappropriately hostile spin on relatively benign events."

To illustrate this point, there was an event early in the unit's deployment in which they had to implement a contingency plan to respond to and control an incident in which a group of demonstrating students began throwing rocks at one another and the military forces on the scene. Some accounts of the incident highlighted the effectiveness of the unit's response to the event and suggested that the warfighting mindset enhanced their ability to control the situation. Still others proposed an alternate explanation for the incident; it was the warfighting mindset of the unit and their propensity to respond aggressively to situational cues that contributed to the escalation of the event from a minor disagreement to a crisis, resulting in violent clashes between the U.S. forces and the demonstrating students. To apply the lessons learned from this event to support the development of SSTR expertise requires an understanding of what happened and why. Understanding the relationship between what the unit's actions and their impact on operations continued to be a challenge throughout the rotation. Only when a unit understands the relationship between its actions and the effects within the socio-cultural context of the contemporary operating environment will an effects-based approach to planning (Center for Army Lessons Learned, 2005) work well.

This warfighting mindset also contributed to a continuing lack of understanding between Division and Battalion. The Battalion was able to adapt their initial warfighting mindset to the requirements of the low threat environment as they interacted daily with the actual environment. According to Yates (2006), in SSTR operations, Soldiers will need to have "negotiating skills, cultural awareness, a sense of historical context, empathy for the position of other participants, patience, a grasp of nuance, a willingness to compromise, and a basic understanding of how various political, economic and social initiatives affect the military's role" (pp. 27). Having traditional knowledge of your own and your enemies' capabilities, knowing their order of battle, intentions, tactics, location and capabilities is inadequate to conduct common SSTR tasks such as dealing with looting, refugees, criminals, paramilitary groups, public health and sanitation problems, and humanitarian assistance (Yates, 2006). In a personal communication, a recent graduate from the United State Military Academy wrote that his job in Iraq was to manage SWEAT – Sewer, Water, Economics, Academics, and Transportation.

Clearly, more emphasis should be placed on troops arriving at the rehearsal exercises at a higher readiness, level and rehearsal should include practice and feedback on working with non-governmental organizations (NGOs) as well as with local politicians and community representatives. A focus on and methods and technologies to teach interpersonal skills such as persuasion and negotiation necessary for working in a multi-cultural environment are critical at all levels. Rehearsal without preparation in the fundamentals and team building without many of the key team members is neither cost-effective nor efficient.

2.2 Organizational Challenges

2.2.1 Over-reliance on the chain-of-command is likely in multinational headquarters, especially in uncertain situations

Strict adherence to a hierarchical command structure is inefficient and non-adaptive, especially when the mission is highly uncertain and adaptability is required (for a review of the requirements for adaptability see Burke, Stagl, Salas, Pierce, & Kendall, in press; Burke, Salas, Estep, & Pierce, in press). At Multinational Division (North), staff teams tended to be fairly homogenous. The primary staff was mostly active-duty U.S. Army officers and non-commissioned officers (G1 to G4, G6 and Artillery) operating

within traditional authority boundaries performing their traditional missions except for artillerymen who performed the Information Operations function. National Guard and Reserve units filled many enabling functions, such as CA, civil military operations, media operations, and public affairs. The G5, CA chief, was a multi-national officer.

Most planning or working groups were comprised of members from across the Division to include the core staff and enablers. For example, both the planning group and the Information Operations working group were composed of active duty, National Guard or Reserve, and multi-national team members. There was little legitimate authority of the team leader to direct the actions of the team members. There was a tendency to highlight differences between the team members and to explain or justify problems with team building and teamwork on the diversity of the team, especially the lack of legitimate authority of the team leader over all the team members. This problem was recognized across the task force. One officer explained "we have to get past the notions of adcon (administrative control) and opcon (operational control), for this operation to be successful it has to coop con (cooperation control)." Unfortunately, unit leaders were not well prepared to lead flat, peer-level groups.

A critical example was the breakdown of communication and cooperation between the Civil Military Coordination (CIMIC) Battalion and the Division. The CIMIC Battalion was a National Guard unit and, as mentioned previously, it was already in place when the U.S. Army Division Headquarters staff arrived. The G5, CA chief is often the CIMIC commander but, in this case, the CIMIC was commanded by a National Guard Lieutenant Colonel and the G5 was a Norwegian officer. Coordination with the G5, the CIMIC representative to the Division staff, was limited. Thus the link between the CIMIC and the Division was weak. This breakdown in the relationship between the CIMIC and the Division was not corrected during the rotation in which it was observed. The CIMIC worked with the IC without an understanding of Division goals and priorities and the Division planned operations without an understanding of civil military operations.

Improving situation awareness, especially among personnel who are separated from daily interaction with the local community, will require better interaction between civil and military operations in planning and execution. Better understanding of how to lead non-hierarchical and multi-disciplinary teams will facilitate this interaction. Bureaucratic, hierarchical team processes, which seem to characterize current U.S. Army staff operations, are inadequate for SSTR (Aylwin-Foster, 2005).

2.2.2 Determining what to measure is hard, especially when the objective is to maintain security and stability

In Bosnia, Soldiers on the ground developed a high level of understanding of the operational environment through interactions with the local leaders and the community. As described by Battalion staff officers, "Division information requests are outrageous and the level of command involvement is too high. The Division staff is so large it is dysfunctional. Communications across the Division staff are not good, resulting in repeated requests for the same, mostly irrelevant, information. If we send up a spot report on a traffic accident, before we can even get to the site and do an initial assessment, we are immediately inundated with requests for specific details interfering with our ability to do the assessment."

The organizational design of the task force in Bosnia contributed to the confusion. A Major General commanded the task force and he was supported by a Division Headquarters staff. There was a Brigade Commander, but no Brigade staff. The Division staff interacted directly with the staff of an Infantry Battalion, Armor Battalion, and an Aviation Brigade, with each commanded by a Lieutenant Colonel. The Division staff was much larger than the Battalion staffs and, on average, significantly more experienced in military operations; however, not necessarily more experienced in SSTR than the Battalion staffs. In general, the role of the Battalion staff was better defined and success was easier to measure than were the functions and the achievements of the Division staff. Many Battalion personnel reported that, once they

overcame the aggressive stance they learned during pre-deployment preparation and adapted to the actual requirements of a low-threat environment, they were able to execute their SSTR mission by gaining the trust and confidence of the local community to gather information and to maintain a safe and secure environment.

Battalion personnel were given a great deal of autonomy to interact with the people and officials in Bosnia to perform their mission. They reported that the major impediment was interference from Division asking for information and a level of reporting that seemed to indicate a fundamental lack of understanding of the operational environment. Not only was irrelevant information requested, the same bad information was requested by multiple Division staff sections, indicating limited cross-talk at Division and increasing the load on the Battalion unnecessarily. An example of this was highlighted by the Battalion S2 intelligence officer who explained that Battalion reports were often misinterpreted by the Division G2 intelligence officer due to limited experience in SSTR and little understanding of the situation. The G2's assessment was reported to the Commanding General, who questioned the Battalion Commander, resulting in a tasking from the Battalion Commander to the S2 to respond to the G2; and the process started again. A number of barriers to adaptability were present in the situation. The Division staff was housed "behind the wire" at Eagle Base and, for force protection, they generally did not leave Eagle Base unless as part of a multiple vehicle patrol. Their interactions with the community were minimal. Thus, senior Division staff officers were separated from the situation, had limited experience in SSTR, but had the responsibility for interpreting the data supplied by the Battalions, summarizing and presenting it to the Command Group, and planning for and directing the Battalions. In addition, the Division staff was large, organized to command a Division, but with only Brigade assets to direct.

How this organizational structure impeded performance was captured in stories shared by Division and Battalion Commanders. For example, the Division staff was involved in a major effort to document mission successes to support recommendations for organization redesign and eventual withdrawal from Bosnia. One of their primary measures of success was a negative correlation between violence and the number of presence patrols. They proposed that as presence patrols increased, violence would decrease. Battalion personnel were directed to project the number of presence patrols by area two weeks in advance and to report the number of presence patrols actually conducted by area on a daily basis. If projections or the Division's expectations did not match the actual number of patrols by area, the Battalion staff had to justify the deviations. Reasons for mismatches were often due to last-minute changes unrelated to the mission. Visitors may have requested to ride along with a patrol and additional vehicles added to accommodate their request of deviations could have been due to such things as maintenance or supply requirements. Also, there was an issue of exactly what constituted a presence patrol. Was it number of vehicles, time on patrol, mission, etc? Either because Battalion personnel did not understand or agree with the value of actual counts or because of the confusion and extra work caused by deviations, there was a tendency to either rigidly comply with projections, limiting response flexibility, or to define deviations in such a way as to remain consistent with projections. Battalion personnel indicated that this count became their most important requirement from Division and drove much of their daily routine with success being the accuracy between the actual number of patrols and the number of patrols predicted.

Misunderstanding the operational environment, not co-opting those tasked to implement the mission or exploiting their expertise to define appropriate measures of success, failing to explain why accurate counts were critical, and then punishing change, seriously undermined the validity of the data. How did the organizational structure contribute to this result? First, the Division was over-staffed for the operational requirements. As reported by one senior officer, "Usually plans are developed and based on information from the operational environment, but in this environment there is so little to do, that we come up with our own ideas and then begin planning and tasking others." The senior staff officers had less experience in the operational environment than the junior staff. The experience of the Division staff was in warfighting. Their ability to adapt to civil military operations was inhibited by the problems they had in working with the CA Battalion and lack of experience in the environment.

Following are two examples of creative problem solving that might have been more prevalent if the Division and Battalion staffs had worked together more closely. In response to another request from Division regarding whether or not voters would be returning to their pre-war town to vote, the Division directed that the Battalion staff prepare an observation plan to monitor traffic on elections day. To help prepare for the task and to assess the amount of bus traffic likely to be on the roads that day, the Battalion staff went to the bus station to rent a bus for election day. When they learned that all the buses were rented for the day, they were able to infer heavy voter traffic and were better able to prepare for their role. In another instance, the Division wanted information on a potentially volatile political meeting to be held by the Women of Podrinja. The Battalion took a similar approach as before and went to the town where the meeting was to be held to book a room at the main hotel. When they found that the hotel was full that day, they were able to get additional information about the rally, which turned out to be a woman's support group awareness meeting, not a political rally. Understanding the environment was important in devising common-sense approaches to answer operational questions. Battalion personnel stated that their ability to monitor the subtle, dynamic cues, patterns, indicators, and warnings such as the level of propaganda on the radio, questions asked by the local community, and the CA reports allowed them to develop greater understanding of the situation than was possible at Division.

2.2.3 The relationship between the Battalion staff and the Division staff was somewhat analogous to an armchair quarterback calling the plays

The Division staff was removed from the action and in addition to having lower levels of situation awareness or understanding, this separation created a breakdown in timeliness, or making decisions and transmitting orders in time for them to be relevant. A disastrous example of an armchair quarterback with bad timing was the command and control of convoy movement in Mogadishu, Somalia by the commander at the base camp. By the time his commands to the convoy to turn right or left as required to direct it to the downed Blackhawk helicopter were relayed, the convoy had passed the appropriate intersection. This resulted in the convoy becoming lost, being exposed for an unnecessarily long time to enemy sniper fire, and the death of American Soldiers.

In a similar, but (thankfully) not disastrous event in Bosnia, a Comanche helicopter lost power and had to make an emergency landing in the area of responsibility of one of the Battalions of Task Force Eagle. The first report relayed from the Battalion to the Division indicated that the Comanche helicopter had landed in a minefield. There was a general sense during these stability operations that the first reports were always wrong, and often the second and third reports were wrong, too. Thus, it was important not to overreact, rather to let the situation unfold to let the pattern emerge before making decisions. We initially dubbed this "tactical patience" but later analysis suggested that rather than a need for patience, it was more important to know what types of decisions, actions, or responses were appropriate given the tactical situation. The Battalion perceived the Division decision-making process as slow and cautious. This may represent tactical patience and a desire not to rush to failure or it may simply be the result of too many decision-makers at Division, an ambiguous mission, and ill-defined priorities. However, the impact on Battalion decision-makers was confusion. They were unsure what decisions were important, what were unimportant, what decisions should be made at Battalion and what should be forwarded to Division; and if the questions were forwarded to Division, they did not know if they could wait for the answer.

The order from Division in response to the first report on the Comanche Helicopter incident was to not attempt to rescue the pilots. Even if the pilots had to spend the night in the helicopter, the unit was to wait to allow time for the mine clearing equipment to arrive and sweep the area. When the Battalion patrol arrived, they determined that the first report was wrong. The helicopter had not landed in a minefield, but rather near a minefield. The path to the helicopter was clear of mines as evidenced by local farmers on the scene with "precious" livestock walking the path between the road and the helicopter. In the meantime, the Division was acting on the first report. When the Division learned that the pilots had been retrieved and were safe, the Division G3 staff officer giving the orders and working the response was enraged. The

Battalion Commander had to intercede on the part of the officers on the scene to control the response of the Division G3. Although this instance did not result in the disaster of Mogadishu, it is possible to speculate on the impact this might have had on initiative and on the likelihood that Battalion personnel would wait for direction next time.

On a previous rotation, a similar event occurred in which a patrol disobeyed an order that could have resulted in a Soldier's death. A patrol was sent to investigate a report of shots fired and Soldiers down at the home of a Croatian family. This home was well known to the Soldiers in that it was the only house occupied by Croats in the area, surrounded on one side by Muslims and the other by Serbs. When the patrol arrived on the scene the father of the family was covered in blood and running down the hill. He reported that he and his family were being fired upon, but that he did not know who was shooting and his wife and daughter were up the hill and had been shot. As the patrol investigated and the situation unfolded, they determined that the man's wife and daughter had wandered out into a minefield and were injured and could not get out. The patrol was directed not to go into the minefield, but to wait for mine clearing equipment. They determined that the women were in extreme danger, that their legs had been blown off, and that they would die if not removed quickly. The platoon leader had a combat lifesaver team member in his platoon. He directed the Soldier to take the father with him into the minefield and rescue the women. That was only the first tough decision for the platoon leader. He then had to decide whether to send the women to the Muslim hospital or the Serb hospital or to evacuate the women to an Army hospital. Because of the unique situation, he decided on the latter, even though the unit's policy was to use local hospitals, if available. The mother died; the daughter lost her legs, but lived. The platoon leader did not wait for approval from Division to act. Did he make the right decisions? What if the Soldier had been killed? Who should make these kinds of decisions and what are the implications for team initiative, flexibility, and adaptability in "wicked" problems such as these?

The point is that the best understanding of the situation rests with the Soldiers on the ground. They must be given the training necessary to prepare them to assess uncertain situations and given the power to act. In Iraq, many U.S. forces are relatively isolated from the population. Their predisposition is to turn to technology to solve problems and to enhance force protection, as in Bosnia, they seek to minimize contact with the local population (Aylwin-Foster, 2005). Also noted by Brigadier Aylwin-Foster (2005) was a common trend for micro-management, with many hours devoted to daily briefings and updates. He found staff planning to be staff-driven with a process, rather than end effect focus. "The net effect was highly centralized decision-making, which worked when serving a commander with a gift for retaining detail and concurrently managing a plethora of issues, but all too readily developed undue inertia. Moreover it tended to discourage lower level initiative and adaptability, even when commander consciously encouraged both (Aylwin-Foster, 2005, p. 7)."

3.0 RECOMMENDATIONS

Many of the conditions that existed during our observations in Bosnia exist in Iraq today. However, the difference is that the U.S. Army has initiated programs to redress the training and operational shortfalls. SSTR has been recognized as a core military mission (United States Department of Defense, 2005). Commanders on the ground in Iraq are learning from their experiences and writing about them. Lieutenant General David Petraeus (2006) has summarized his learning in fourteen observations from Soldiering in Iraq. These observations are listed below.

1. "Do not try to do too much with your own hands."
2. Act quickly, because every Army of liberation has a half-life.
3. Money is ammunition.
4. Increasing the number of stakeholders is critical to success.
5. Analyze "costs and benefits" before each operation.
6. Intelligence is the key to success.

7. Everyone must do nation-building.
8. Help build institutions, not just units.
9. Cultural awareness is a force multiplier.
10. Success in counterinsurgency requires more than just military operations.
11. Ultimate success depends on local leaders.
12. Remember the strategic corporals and strategic lieutenants.
13. There is no substitute for flexible, adaptable leaders.
14. A leader's most important task is to set the right tone.

The Department of Defense Directive 3000.05 and the observations of Commanders in Iraq, taken together, are having a profound effect on U.S. Army efforts to respond to evolving threats and to maintain U.S. Army pre-eminence by transforming doctrine, organization, training, leader development, materiel, personnel, and facilities.

Based first on our understanding of the operational environment in Bosnia and enhanced by lessons gathered in Afghanistan and Iraq, the U.S. Army Research Laboratory continues to propose, develop, and evaluate technologies to support Leader and Team performance in SSTR. Our current focus is on the development of technologies to augment collaboration among highly diverse, often distributed team members solving "wicked" problems characteristic of SSTR operations. Collaborative technologies generally focus on establishing physical interoperability to the exclusion of technologies that promote cognitive interoperability. Our focus is on developing technologies to enhance information sharing, trust, and understanding among team members with an aim of developing plans and executing operations that integrate objectives across perspectives from major combat operations to peace enforcement, peacekeeping, and humanitarian assistance. The technologies we propose are being designed to improve cultural awareness and provide feedback on team processes.

3.1 GlobeSmart® Commander and GlobeSmart® Soldier

The cultural awareness tool, GlobeSmart® Commander is an instructional tool designed to provide teams performing command and control functions the information and skill they need to adapt to cultural influences on teamwork at the operational level (Sutton, 2003; Sutton & Cosenzo, 2004, Sutton & Edelmann, 2005; Sutton & Pierce, 2003; Sutton, Pierce, Burke, & Salas, 2006). GlobeSmart® Commander includes a self-assessment survey and nine training modules. Users develop a better understanding of how culture influences their interaction and decision-making styles as well as the impact on culturally diverse team members by comparison of their profile on six dimensions to the profiles of national averages for many other nations. The six dimensions reflect basic culturally-based values or orientations identified in the culture literature (e.g., Hofstede, 1989; Schwartz, 1992; Triandis, 1989; Trompenaars & Hampen-Turner, 1998). The survey and the survey algorithm were developed by MeridianEaton Global with the assistance of Dr. David Matsumoto at San Francisco State University (Sutton & Gundling, 2005).

Numerous senior leaders drawing lessons from Iraq (e.g., Aylwin-Foster, 2005; Chiarelli & Michaelis, 2005; Petraeus, 2006; Yates, 2006) have noted a need to improve cultural understanding. Although observation number nine made by Lieutenant General Petraeus specifically refers to cultural awareness as a force multiplier, many of his observations are enabled by cultural awareness. For example, observation number twelve says to remember the strategic corporal and strategic lieutenants. This observation also echoes the experiences documented in this paper of the multi-national coalition in Bosnia. To address these observations, ARL HRED has proposed a new program called GlobeSmart® Soldier, which focuses on applying techniques for cultural awareness at the operational level, to the Soldier at the tactical level. The need for cultural awareness has also been documented in Military Operations Force Operating Capabilities (US Army Training and Doctrine Command, July 2005) and in U.S. Army futures concepts (US Army Training and Doctrine Command, April 2005). A new cultural training facility was established

at the U.S. Army Intelligence School at Fort Huachuca, Arizona and cultural awareness is being integrated into the curriculum of other U.S. Army training facilities.

3.2 Latent Semantic Analysis Tools

The second technology being proposed to improve multi-cultural collaboration is Latent Semantic Analysis (LSA). LSA is a machine learning algorithm that understands the meaning of words and text in much the same way as do humans (Landauer, Foltz, & Laham, 1998). LSA uses a fully automatic mathematical technique to extract and infer meaning relations from the contextual usage of words in large collections of natural discourse. In this application, LSA-based tools will be used to monitor written communication streams among team members and between teams. LSA will judge the quality of the team's performance, measuring such things as convergence of contributions, coherence among team members, degree of topic-related discussion, and identification of critical incidents. Initial tests of LSA-based team communications analysis methods have shown great promise. Using existing command and control communication data sets, the technology has been able to provide highly accurate predictions of the overall team performance and to make reliable judgments of the type of patterns of communication among team members (Foltz, 2005; LaVoie et al., 2006; Martin & Foltz, 2004; Gorman, Foltz, Cooke, Kiekel, & Martin, 2003; Kiekel, Cooke, Foltz, Gorman, & Martin, 2002).   The output of the performance measures are then used with visualization tools to provide team members with an overview of the performance of the team to enhance team situation awareness.

As described earlier, SSTR is a "wicked" problem that is addressed by social negotiation among culturally diverse stakeholders. Lieutenant General Petraeus (2006) captures this notion in observation number ten in which he defines success in counterinsurgency as requiring more than just military operations. Counterinsurgency strategies must include, among other things, political considerations, economic recovery, education, diplomatic initiatives, and provision of basic services. Winning the war by winning the peace requires an integrated approach to planning and operations (Yates, 2006). This is consistent with Joint Forces Command concept of Effects Based Operations (Center for Army Lessons Learned, 2005).

3.3 Technologies for Augmented Collaboration

The Defense Advanced Research Projects Agency, or DARPA, is supporting the use of both GlobeSmart® Commander and LSA in a US and Singapore command exercise. The objective of the exercise is to experiment with and evaluate technologies for improving multi-cultural team performance in an irregular warfare scenario. The Singapore Centre for Military Exercises will develop a realistic, simulation-based scenario, which will include a chemical and biological attack near a U.S. Navy ship, docked in Singapore. The operation will include military and humanitarian responses.

The independent variables will include the type of planning system used by the teams and the presence or absence of augmented collaboration tools. The dependent variables will include team processes, emergent states, and outcome measures. The process and emergent state measures will be captured by LSA and by using survey instruments administered at pre-determined times during and at the end of the exercise. The survey instruments will be used to assess shared mental models; team situation awareness; and psychological safety, as measured by the degree to which team members trust one another and their commitment to the team and team products. Outcome measures will be mission-based and captured by the simulation and through observation. Results of the simulation will be used to refine the toolset.

In addition to the technologies described above, the U.S. Army Research Laboratory is supporting an Army Technology Objective called Learning with Adaptive Simulation and Training, which is focused on

developing simulation software that uses intelligent tutoring to train Soldiers and officers at all levels how to negotiate with people of Middle Eastern descent.

4.0 CONCLUSIONS

Although there has been greater awareness of the need for technologies to improve cultural awareness and multicultural teamwork, with the possible exception of the National Training Center (NTC) at Fort Irwin, CA, most of the training has consisted of quick reference guides and power point presentations on history and cultural mores of the Middle East. Also, because of the rapid deployment timelines, many Soldiers deployed during Operation Iraqi Freedom and Operation Enduring Freedom probably did not receive in-depth training on how to interact with local people of Afghanistan or Iraq unless they were CA or Information Operations specialists. Lieutenant General Petraeus (2006) has described much of the cultural learning that took place in Iraq as "discovery learning."

As was done with Bosnians at the mission rehearsal exercise held at the Joint Readiness Training Center, the NTC has made attempts to integrate socio-cultural aspects into their live exercises by having Iraqi nationals play the parts of Iraqi citizens and leaders with whom trainees must interact. However, as seen in Bosnia, this change must be supplemented by a change in mindset. Articles presented in this paper by Lieutenant General Patraeus (2006), Major General Chiarelli and Major Michaelis (2005), and Brigadier Nigel Aylwin-Foster (2005) portend a change, but as described by Yates (2006), "there is always the possibility that the occupation of Iraq, however it turns out, will be seen by traditionalists as just another aberration; it could even end up reinforcing the traditionalist view, just as Vietnam did, that the United States should avoid wide-ranging commitments to stability operations at all costs" (p. 22).

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